AMERICAN VETERINARY REVIEW,

AUGUST, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

By A. ZUNDEL.

(*Continued from page* 136.)

Pathological Anatomy and Nature of the Disease.—It has always been considered that a morbid condition susceptible of producing disorders so severe as those produced by canker, must necessarily be a deep affection, essential and important to the organic structure, and depending on a complete transformation in its texture. And, indeed, it is the impression which predominated from the time of Solleysel down to the foundation of veterinary schools and which still exists with Girard, who considers canker as a gnawing ulcer which changes and alters the tissues it invades, and even with Vatel and Hurtrel D'Arboval, who looks upon canker as the carcinoma of the reticular structure of the foot.

It is but recently that these ideas have been abandoned. Dupuy, in 1827, considered canker as a hypertrophy of the fibres of the hoof, admitting at the same time the disintegrations and softening of those same fibres occasioned by an ammoniacal saponization produced by an altered secretion.

In 1841, Mercier expressed the opinion that canker is nothing more than a chronic inflammation of the reticular tissue of the foot, characterized by diseased secretions of this apparatus.

It is now known that there is in canker, no essential altera-

tions of the sub-horny tissues; no radical change of their substance, and no deposit of heteromorphous molecules in their structure. This last mentioned fact was well observed by Robin, who in his microscopical remarks constantly observed the absence of the characterizing elements of canker. Hertwig and Haubner, who have made researches in the same direction, arrived at the same result and have noticed the absence of any cancerous cells in canker. This opinion is, however, doubted by Glisberg and Fuchs, who look upon canker as an epithelioma, though they bring no sufficient evidence to establish it.

Except vegetal parasitism, of which we will speak hereafter, and which makes of canker a true dartre, an herpetic disease, as demonstrated by Megnin, there is only in canker a chronic inflammatory condition of the sub-horny tissues which is manifested by a perversion in their secretion, and is complicated by a morbid hypertrophy of the villous processes by which their surface is normally covered. Robin has seen in the fici, papillœ made thicker and more brittle by the plastic infiltration which moistens them; he has observed besides, that at the points where the secretion is good, it is so active, that instead of drying in sheaths, to scale off afterwards in transverse pieces, as normally occurs in the frog and sole, the epithelial cells grow lengthwise, as those which form the walls of the foot. Hence these long, horned, twisted threads (epithelioma?) which are seen rising from the sole of long affected cankerous feet.

It has sometimes been admitted that fici had deep roots in the tissues, and even in the plantar aponeurosis, which is an error; injections and macerations having shown that there are no essential changes in the anatomical structures of these parts, and that what have been considered as the roots of fici were only cellular tissue, which has become indurated under chronic inflammation (Bouley.) Fici are only fasiculi of villosities whose vascular net-work is no longer retained by the thick horny box which encloses them and which is infiltrated with plastic material.

Bouley has already admitted that canker could not be better classified than amongst skin diseases, with and after dartroid affections, and thus gave reason to Huzard senior; Plass also found that canker had the greatest analogy with grease, and that in it

the nutrition of the horn underwent the same alteration with nutrition of hairs in the second affection.

Megnin in 1864, observed, in operating upon fresh pieces taken from the living animal, and from one which had not received any treatment, that in canker there is constantly a cryptogram, as in favus, and that canker is a parasitic affection.

Examining the caseous product of the abnormal secretion which characterizes canker, Megnin found in it a large quantity of very animated vibrios, swimming in a liquid having in suspension numerous epidermic cells more or less advanced in dissolution; he found besides rounded corpuscles, which he recognized as the spores of the cryptogam, and from which the vibrios escaped at the maturity of the granulations there contained. In examining the fici, he has recognized them to be an aggregate of hypertrophied villosities, at the base of which were found in the mass obtained by a slight scraping epidermic cells or parts of cells enclosed in a net work of inter-crossed, ramified threads, appearing to rise from certain centers marked by an agglomeration of spores, forming in their whole a yellow spot. In the water of the microscopic preparations, one finds also, several of these isolated threads, epithelial cells, globules of lymph, of blood and finally spores; very rarely vibrios; oftener micrococci. These threads are nothing more than the parasites, the mycelium product of the vegetation of the spores; those contained in the serosity, swell, break up, and the granulations which escape from them become for some time the vibrios, or as we prefer to call them pseudo-vibrios; as soon as the brownian motion, which for some time animates the granulations, ceases, the cells which have proceeded from them (the micrococci) gather together in chains and form the characteristic threads of the mycelium.

This parasite of canker has been named by Megnin the *kerophyton* or parasitic plant of the horn by analogy with the trichophyton, the parasite of the hair. We consider this name very appriate and prefer it to the name of *oidium batracosis*, parasite of canker, which Mr. Megnin has also proposed.

Etiology—The causes of canker are yet but little known; there is one, however, which cannot be ignored and which, if it does not produce the disease, assists materially in its

development and is indispensable to its existence. We refer to the condition of dampness. It is that influence of dampness which explains why the disease is so very common in the marshy lands of Poitou; in the pastures of Holland, and in general in low grounds; and why it is more frequent in northern than in southern countries. Canker is incomparably more frequent in rainy seasons than in those where dryness predominates. We have already seen in the history of the disease that it is since the streets and the stables of administration are kept more free from dampness that canker has become less common.

Sometimes the action of direct irritating causes has been admitted, and then the canker has been attributed to irritating muds and the excrementitial liquids of stables; their contact often giving rise upon the skin, upon the glomes of the frog, to an erythematous inflammation, soon followed by a serous flow, which extends to the sub-horny structures and gives rise to an exudation in the laminæ of the frog. This cause produces the rotten frog (thrushes) but not canker. We believe that this cause has principally been admitted by veterinarians who look upon thrushes as the first stage of canker, but this is not so, and for canker to develop itself under similar conditions, others are necessary, which are as yet unknown.

Canker has also been attributed to narrow and contracted feet, so common in horses of meridional climates, and in which the sole is very concave with the frog and pyramidal body shrunk in. Often in the laminæ of these feet a sero-purulent moisture is discovered more or less offensive, which is a rotten frog, but not canker, and but seldom followed by it.

To produce canker, a simple irritation of the sub-horny structure is not sufficient. There must be a special cause, proper to canker, stimulating alone the characteristic changes of the cause. This cause we find in the cryptogam which characterizes canker, propagates it, and which, like other living beings, has no power of spontaneous existence.

As with other parasitic diseases, canker is communicable by contagion; although the examples are quite rare, they cannot be doubted. Hurtrel, d'Arboval, Plass, Blind and Megnin have

observed them, and in all the cases dampness has contributed to the propagation of the cryptogam.

The lymphatic constitution in an animal is eminently propitious to the development of canker, as it is observed to be, in fact, for all parasitic diseases.

It is known by daily observation of facts that horses whose skin is thick, with the hairy system well developed, the feet flat, with thick frogs, are more often affected with canker than animals of a nervous constitution. It is more particularly observed in horses with much white at their extremities, with stockings and white feet, and in those where there is a tendency to albinism.

An unknown diathesis has also been considered as causing a predisposing constitutional organic condition, but this has not been justified by observation. It may happen that canker cured or dried on one foot, may attack another foot, perhaps a third, and then a fourth, to re-appear in the first; this character of the disease has often been mentioned a proof of this diathesic condition; but it may also be explained by its contagious character. The disease remains too much localized to be constitutional, as generally in diathesic diseases we have critical eruptions upon different organs or different tissues.

(*To be continued.*)

RESUMED STUDY IN ANTHRAX.

CONSIDERED FROM THE POINT OF VIEW OF SANITARY POLICE.

By Prof. Dessart.

Generalities.—The name of carbuncular disease has been, until lately, applied to numerous affections having some common characters, but different in their nature. This application of an improper name to diseases which, in reality, are not anthrax, might have given rise to serious difficulties in the matter of sanitary medicine, especially in leading to errors in the administration of justice, in the imposition of the fines imposed by provisions of the Penal Code. Fortunately the obscurity which surrounded

the etiology and nature of the carbuncular process has to-day disappeared. Science has succeeded in clearly establishing the distinction between true carbuncular affections and those which possess only some more or less marked resemblances to them.*

Amongst the several diseases grouped by empirical observations under the collective designation of anthracoid, there are but few which present the pathognomonic sign of anthrax. Evidently these last are those which are referred to in the laws of 1867.

* * * * * * * *

Charbon is a parasitic disease. It is produced by the presence in the blood, and other *media* of the animal economy, of a mycrophite called *carbuncular* bacteridie. Most of the mammifera and domestic animals are subject to it. We will, however, limit our symptomatic description of anthrax as we meet it in the horse, the ox, the sheep and in swine. We nevertheless, must make a special reserve in respect to the swine species. As it seems that diseases of small hogs, or properly, pigs, called *carbuncular angina*, *gangrenous erysipela*, etc., though considered to this day as manifestations of anthrax, were of a different nature, probably of septic or anhematosical nature.† At any rate, in case of difference of opinion as to the nature of these affections, the presence or absence of bacteridies in the blood or lymph of the patient's wound settles the question. At best, one could have recourse to experimental inoculation.

But before giving the symptoms of anthrax, some preliminary data essentially necessary to its exact knowledge must here find a place.

The contagium (virus) of anthrax is constituted by the parasite itself, which produces the affection; that is, by bacteridie. It has just been demonstrated that the microphyton is but an ulti-

* The observations of Delafond, Brauell, Koch, Davaine, Joubert and more recently, especially the important discoveries and experiments of Pasteur, Toussaint, and Hans Buchner have thrown the greatest light upon carbuncular diseases. The etiology of anthrax rests, thanks to the last investigators, upon a solid, material base, and to-day the disease has limits as well defined as those of hydrophobia, scabies, small-pox, etc., etc.

† It has been proved *experimentally* that pigs *are refractory* to anthrax (Recherches, sur la maladie charbonneuss, Paris. 1879, by H. Toussaint) Is it equally so in ordinary circumstances?

mate transformation of the mucedinœ of hay.* Bacteridie (bacillus anthracis) is, so to speak to anthrax what the acarus is to scabies. The presence alone of bacteridie in the blood "indicates positively the disease." †

Carbuncular mycrophytes penetrate into the blood by different modes. 1st, by solution of the continuity upon the mucous membrane of the digestive apparatus (principally the mouth and pharynx) through the coarseness of thistles and plants upon which animals live; 2d, through wounds of external tegument; 3d, through the respiratory passages.‡ In this last case, the microscopic algæ,‖ which produce the disease, being in suspension in the location where the growths of unwholesome pastures are inhaled by animals down to the finest bronchial division.

Introduced into the living tissues of the economy, and from thence into the blood, the parasites of anthrax give rise in it as well as in the capillary system, to disturbances which constantly end fatally, in seldom less than four days. In the greatest number of cases, animals die in the first two days after the earlier manifestations of the disease.

The changes produced by the presence of the leptothrix in the circulatory apparatus consist especially:

1st. In the disoxygenation of the blood; the mycrophites taking off the oxygen of the hematies.

2d. In the alterations of the blood mass by the toxical products furnished by the parasites.

3d. In the obliterations of the blood capillaries by the collections of bacteridies in regions where their multiplication has

* Neuere Torschungen uber die Ursachen des Milzbrandes. Von Delius. Ueber die experimentelle Erzengung des Milzbrand-kutagiums ans den Henpilzen, von Haus Buchner. (Journal de la Societe Agricole du Brabant, Hainaut, 1880, No. 47.)

† H. Toussaint, loc. cit., jo. 67.

‡ Hans Buchner.

‖ It would be better, on account of the origin of the carbuncular mycrophiton being known, to call it *leptothrix* of *anthrax* instead of bacteridie. But while waiting for the time when science shall have agreed upon the name to be adopted, we shall use indifferently, the terms bacteridie, leptothrix, microbe etc., to designate the parasite of anthrax. For the disease itself, it might be of advantage to call it *bacteridiasis* or better *mucediniasis*, by analogy with *helminthiasis, phthisiasis* etc.

been more active, and greater principally in the parenchymatous organs and in the mucous and submucous structure of the intestines.*

The obliterations, which sometimes take place upon large surfaces, (*territories*) bring on disturbances in the general circulation. They furnish explanations of the internal *localizations*, which are observed in the different apparatus of the organism, especially in the form of infiltration of hemorhagic centers, etc., as well as the disoxygenation of hematies, which explains the dark aspect of the blood. But independently of these essential changes, there are others, entirely local, which show themselves at the points through which the parasite has entered the animal economy. They are stimulated by the phlogogenous action of bacteridies, and excite externally the production of various enlargements, more or less well defined, sometimes diffused and with an œdematous character, at least in the beginning. These tumefactions form the *primitive* external *localizations*; they are the *malignant pustules* properly. If they are excised or destroyed *in time*, that is, before the entrance into the blood of the microbes they contain, the disease may be aborted. Frequently one may observe other *localizations*, also external, but *consecutive* to the introduction of the microphytes in the blood-mass, and whose presence may be largely attributed to the bacteridian embolisms found in the peripheric capillary system. The destruction or excision of these local *consecutive* alterations do not at all interfere with the progress of the general morbid process.

As long as the microbes remain only in the net-work of the structure, where they have been deposited, their multiplication is comparatively slow, because this is not sufficiently rich in oxygen. But it is different, when, through lymphatic blood-vessels and rupture of the capillaries, they enter the current of the blood. They then multiply rapidly and are transported to every point of the economy. This last multiplication takes place

*See the Theorie generale de l'action des bacteridies dans le charbon. M. Toussaint, loc. cit., chap. vi.

by scissiparity, and not by sporulation, or by the development of *germ corpuscles*, as might be supposed. *

The duration of the *incubation* is at least equal to the time which elapses between the introduction of the leptothrix into the tissues, and that when it enters the circulation. Experimental observation puts the maximum duration at eleven days. Ordinarily it is very short. By natural infection it is not possible accurately to define the time.

The diagnosis of anthrax, whatever external form it may assume, is established with *certainty* by the presence of the bacteridies in the organism. The media where these are found most abundant are the blood, the splenic pulp, the lymph of affected ganglious, the serosity which infiltrates the swelling, tumors and intestinal extravasations, and the urine. It is there that they must be looked for. They are found there under two conditions, namely, that of spores or germ-corpuscles and that of mycelium or *batonnets*. It is in the blood, the urine, and the pathological products that they develop themselves after the infection has become general. The mycrophites appear most abundant under the last form. They are easily detected in these two forms, with a magnifying power of 500 to 600.

The free spores or *micrococci* have the aspect of small vesicular dots, ovoid or spheroid, shying and strongly refringent.

The spores or germs, the products of the endogenesis, appear in the *living animal economy* only after a relatively long time. According to M. Toussaint † the sporulation in the liquids of culture requires about 48 hours; *a fortiori*, a longer time will be required in the media in the economy which are less favorable to the growth of bacteridie.

---

* Germs-corpuscles or spores find their condition *better* for growth and development *outside* of the organism, for instance in the *liquids of cultivation*. The mycrophite *in the state of bacteridie*, that is, such as found in the circulatory fluids, do not grow. It contains germs-corpuscles, but these do not change into bacteridies into the blood. However, whether the germs come from the bacteridies in the blood or directly from outside, when they are deposited into the tissues of an animal susceptible to anthrax, they are transformed into bacteridies and multiply there in the blood by fissiparity.

† *Loc cit.* p. 54.

Bacteridies, properly so called, that is, the microbes in the state of mycelium, present themselves in the field of the microscope under the shape of short threads,* or of more or less flexuous batonnets extremely fine, cylindrical and immobile. These are formed of segments, few in number, 5 or 6 to the maximum. They have a length varying from 4 to 12 and sometimes 50 w. and a thickness of 8 to 1 w.†

Whether carbuncular bacteridies are introduced into the economy through internal passages or the external tegumenents, or that circumscribed alterations appear or not on the skin and in the subcutaneous cellular tissue, charbon is specified, *with* or *without localizations*. In fact, there are always *localizations*, only in this last condition, the lesions are visible.

External localizations, primitive or consecutive, affect different forms, among which are circumscribed tumors, more or less voluminous; diffused œdematous infiltrations, active from the first; gangrenous sloughs, ecchymotic spots, of various sizes, and bloody extravasations. They appear in the various regions of the body, even on the visible parts of the internal integument, (Glossanthrax.) They are thus analogous in the interior of the organism.

Works on pathology often describe, as so many different diseases, some external *localization* which are most specially manifest, hence the expressions that are so frequently found in the old nosography of charbon. To-day these have only a symptomatic value.

Whether the general alteration of the blood, and consequently the nervous system, is more or less rapid, or that the resistance of the patient is greater or less, anthrax appears under

*Observed in the *liquids* of *cultures*, carbuncular bacteridies have a much greater length and have different dispositions from those observed in the fluids taken directly from the patient, or from a fresh cadaver. M. Toussaint (Culture des Bacteridies, p. 53) has observed that in the prepared liquids, bacteridies are not constantly immobile, at least as long as they have not reached sufficient length to divide.

†A. Raillet, (Les bacteries, *Archives Veterinaires*, No. 12, 1880.) It is very probable that this extreme length of 50 w. has been observed only upon bacteridies in cultivation. Mr. Raillet is not specific upon that point.

the apoplectic form or runs its ordinary *course*.—In the first case there are never any external *localizations*; the death of the patient is too rapid to give them time to develop themselves.

We believe these are the most essential general characters of the disease succinctly gathered, as far as its nature and contagium are concerned. Further on we will take occasion to return to the etiology; but before this we have to consider concisely the external symptoms of the disease, under its most common forms. We shall complete this with a short exposé of the principal pathological alterations of the disease.

(*To be continued.*)

THE USE OF THE ELASTIC LIGATURE IN VETERINARY SURGERY.

By W. J. Coates, D.V.S.

Until within a comparatively short time the knife has generally been the means which the practitioners of veterinary medicine have employed for the removal of tumors, and this has been preferred by them rather than the employment of the elastic ligature.

The use of the elastic ligature is of comparatively late date, and while to its use some objections may be found, yet its general action is so benign and its after care rendered so easy, that it would seem that when this method can be employed no other would be considered.

There attends the application of an elastic ligature two or three conditions which may or may not show themselves; among these fœtor from decay of the tumor is oftentimes a very disagreable accompaniment due to the necrosed material of the tumor and the liability to the formation and absorption of the septic matter from the decomposing material. Caustics are often preferred to ligatures, especially where there are small growths, because of the antiseptic properties which a great many of them possess, but when we begin to consider the pro and con of each

method it seems that ligation will receive more attention and trial.

The advisability of the use of the elastic ligature depends more or less upon the situation of the tumor, and as a consequence the dangers from excessive hemorrhage are to be taken into consideration.

If the tumor is so situated that dangerous hemorrhage can be controlled either by compression or some other means, it would be practicable to use the knife, because there is less time lost than with either caustic or ligature, and then too the animal suffers less than if ligation be adopted for its removal. If, however, the tumor is located so that hemorrhage is hard to control, the better mode of operation is to use the elastic ligature, especially if large and pedunculated. The result of such application is that within a short time, the tumor drops off, leaving a granulated surface which is as clearly cut as if by the knife, and which readily heals, any portion of the tumor remaining being easily sloughed off with caustics, the annoyance of hemorrhage being entirely done away with.

The elastic ligature is easily applied, requires but a few moments, and the after treatment nothing but leaving alone until it has accomplished the desired results.

Caustics are agents which destroy living tissues by virtue of their chemical affinity for one or more of its constituents, and are chiefly used to remove parts so much diseased as to be worthless or injurious, or to destroy heterologous growths, but where practicable the knife is preferable for this purpose. They also differ greatly in regard to the length of time necessary for the healing of the sore which results from their use; thus some produce a sore which never heals, while others are remarkable for the readiness with which they heal. In those which are tardy to heal the corrosive action of the caustic extends deeply into the subjacent and adjoining structures, and should be used with care lest extensive damage be done. Some caustics are good antiseptics and produce a slough, which eschar separates in from a few to many days.

Ligatures act by cutting off the blood supply, and at the same

time by their elasticity cutting through the tissue, or in other words strangulating the tumor, the result of which is a necrosed mass with a fœtid odor. They must necessarily give rise to more or less pain to the patient, but leave a cleanly cut surface readily amenable to treatment; frequently the tumor shrivels up and does not appear to cause the animal any annoyance.

The mode of applying the ligature is to have an assistant extend or isolate the tumor or growth from the surrounding tissue and then wind the elastic round the base, taking in as much of the growth as possible, thereby avoiding the possibility of leaving much if any part remaining; then tie or secure the ends; within a comparatively short time the tumor will drop off, though in some cases a second ligature will have to be used.

The knife of course should be used where the structure is deep or the tumor not well defined and where hemorrhage can be easily controlled; it may be said, is it not better to dissect out the tumor and draw the skin together with sutures so that the liability of having a large cicatrix be avoided, but in how many cases does immediate union take place? In veterinary practice, the sutures give away and it is much better to treat from the start as an open wound, such as results from ligation, having an even granulating surface.

All these methods have been used at the American Veterinary Hospital, their application of course depending upon the character of the tumor. A few cases where the elastic ligature has been applied may be of interest to the readers of the Review.

Early in May a black gelding was sent to the Hospital for treatment. He had on the near elbow a large fungoid growth the size of a child's head, which had been growing for months; an elastic ligature was firmly secured around the base of the growth where it was about 3½ inches in diameter. The ligature cut about half way through in 48 hours. A second one was applied and in 40 hours the tumor disappeared, leaving a smooth granulating surface.

A dressing powder of sulph. copper, pulv. gentian and animal charcoal was prescribed and the horse resumed work; was returned in a few days with a thick scab formed by the application

of the powder; this was removed and milder powder used. The horse was seen several times after this, and when last seen the elbow had very nearly regained its normal appearance.

A grey gelding was brought to the free clinics for treatment. On examination the horse was found to have a melanotic tumor the size of a goose's egg on the inside of the sheath; an elastic ligature was applied and the owner directed to watch, and bring the tumor back when it dropped off. The horse was brought back in 48 hours, the owner saying that the tumor had dropped off and could not be found in the straw. On examining the sheath a very fœtid mass, shriveled up to the size of a hickory nut, was found with the elastic ligature still around it, and which came off on being handled, leaving a small granulating surface.

A sorrel gelding in the hospital for other treatment was found to have a small epithelioma of the sheath, elongated in shape like a peanut; an elastic ligature was applied and the tumor dropped off in a few hours, leaving a wound which healed without difficulty.

CANINE PATHOLOGY.

By R. H. Harrison, D.V.S., House Surgeon American Veterinary College Hospital.

I. Needle in the Rectum.

An English pug, who had been brought to the clinic several times before, suffering with "morbus coxarium," was brought to the morning clinic lately, having great trouble in the act of defecation.

A piece of thread was hanging from the anus and was removed; forceps were then introduced into the rectum, to ascertain if any hardened feces or pieces of bone were present, thereby causing the difficulty. Nothing was found, but when the finger was introduced, the sharp point of a needle could be felt in the lateral wall of the rectum. A small puncture was made externally over the external tuberosity of the ischium, and the needle removed with a pair of forceps. The little fellow seemed

greatly relieved, and went running about as lively as possible. The difficulty passed away and the animal is now regular in all his habits.

A Case of Tinea Favosa.

A diminutive black and tan puppy was brought to the hospital one evening, presenting a very peculiar, ludicrous appearance. The whole body and especially the head was covered with bare spots varying from the size of a pea to a penny.

The gentleman who owned her said that these spots had appeared a week before, and she had gradually become worse; her mother and the rest of the litter were perfectly healthy. A little kitten had slept and played with the puppy since she was removed from her mother, and as the kitten was constantly trying to nurse her, it was thought that this produced the bare places, and so they were separated. The kitten was apparently healthy, and showed no signs of similar spots.

The bare spots when examined showed more or less redness and superficial inflammation in those just developing, followed by the appearance of several small pin-head-sized pale yellow crusts, seated about the hair follicles; others more advanced showed little cups (favus cups) circumscribed, circular in shape and possessing a marked umbilication in their centres, presenting a true honeycomb appearance. The cups latest developed were made up of a series of concentric, compactly arranged rings; their consistence was firm, but friable to pressure, crumbling between the fingers; a peculiar odor was manifest, like that of mice or stale straw.

Desiring to confirm the diagnosis by microscopical examination, the gentleman kindly consented to leave the puppy with us for a few days.

A small fragment of the crust was detached and placed under the microscope and the following condition was observed:

The crust was made up entirely of fungus, composed of a porous mass and possessed of a pale watery color. Each crust was enveloped in a capsule or stroma, formed of a finely granular amorphous material. The growth consisted of both mycelium

and spores in great quantity and in all stages of development. The mycelium appeared made up of narrow, flattened tubes, which ramified in all directions without any definite arrangement; some were straight, others crooked and branching in an irregular manner; others were irregularly jointed and in some places appeared little spaces filled with granules and young spores. The treatment consisted in the application of diluted tincture iodine, and keeping the parts clean by frequent baths of warm water and castile soap. After a few days' treatment, the crusts scaled off and the puppy was discharged with directions to keep the parts clean and use the iodine for a few days, and following it with a simple ointment to allay irritation.

Renal Calculus.

A valuable English mastiff, twelve years old, was sent to the hospital from the country. The only history that could be obtained was that he had passed about six months previously large quantities of worms, and since had been losing flesh and growing feeble.

When admitted, no special symptoms were manifest; general debility was present, but all the functions were apparently normally performed.

He was placed on stimulants and tonics, given a nutritious diet and regular exercise, but did not seem to improve.

On the morning of the fifth day after his arrival, when the hospital visit was paid, he was found down, insensible, gasping for breath and expired shortly afterwards without a struggle.

On post mortem examination, the organs contained in the thoracic cavity were normal. The intestines contained but little food and two tape worms* forty inches long were found. The bladder was distended with urine, and its mucous membrane showed lesions of chronic cystitis.

The left kidney was smaller than normal, and on section showed a calculus filling up the entire pelvis and extending into the ureter; it weighed 240 gr. and was composed chiefly of oxaylates of lime.

*Tenia Serrata.

The right kidney was enlarged to about twice its normal size, and was diseased. A section was sent to Dr. Peabody, the eminent pathologist to the New York Hospital, who very kindly examined it under the microscope, and reported as follows:

"There are areas in which the intertubular connective tissue is markedly increased. In these areas there are many tubes that are atrophied by pressure in great part, and some traces of pre-existing tubes that have almost disappeared. In some of these places there are many cysts, caused by dilatation of the tubes; this dilatation is due to constriction of the tube below it. The dilated tubes (forming cysts) are lined by flat epithelium and filled by hyaline material; many contain hyaline cysts. In some places between the tubes are large collections of young cells, which indicate active interstitial inflammation. I should consider the case one of chronic diffused nephritis. The lesions at present to be seen are only those of chronic interstitial nephritis."

A peculiarity of this case is that no symptoms that would lead to an idea of the trouble were manifest.

Tuberculous Nephritis.

A little Scotch terrier was brought to the hospital clinic one morning in great distress. The owner said that the day before he had noticed that the dog had made frequent ineffectual attempts to micturate. Toward evening he became uneasy, would strain violently and utter piercing cries. He became worse during the night, and in the morning seemed quite exhausted. On manipulation, the bladder could be felt distended with urine, the penis was inflamed and very tender to pressure, there was also slight tenderness over the loins, complete loss of appetite, nervous exhaustion, and a slight rise in temperature. While at the hospital, the dog micturated several times; only a few drops, however, came away; this was attended with violent straining and much pain.

A calculus, or an enlarged prostrate gland was thought to be the cause of the difficulty, and a grave prognosis was given.

A soothing injection was thrown into the urethra by a hypodermic syringe, and belladonna given internally. The animal

died during the day in convulsions, and was brought to the college for post mortem examination.

Post mortem.—The lungs showed tubercles, especially marked on the right. The kidneys were studded over with small whitish nodules and streaks, which were surrounded by congested and hemorrhagic tissue. A section which was kindly examined under the microscope by Dr. Welch, pathologist to Bellevue Medical College, revealed that the nodules were composed essentially of a dense accumulation of lymphoid cells, which had led to destruction of the uriniferous tubules; the infiltration of lymphoid cells extended from the nodules into the surrounding tissue between the tubes. In many places there was an infiltration with similar cells, where no abnormality could be detected.

The nodules and streaks might have been considered as minute abscesses, and the disease process might be called one of acute interstitial or suppurative nephritis, for sometimes apparent tubercles present under the microscope the structure of minute abscesses, instead of the tubercles, but, finding true tubercles in the lungs, it would be preferable to consider it tuberculous rather than suppurative nephritis.

The prostate gland was enlarged slightly. The bladder was distended with urine to its greatest capacity, and its mucous membrane was slightly congested. An attempt was made to find out the cause, by making a careful examination of the milk which they were in the habit of feeding the dog, but tuberculosis could not be traced, for the milk came from a distance in the country and was a mixture of the milk of several cows, and to go and examine the cows was impracticable.

Epithelioma of the Tail and Anus.

A large bloodhound, one of the largest of its kind, was sent to us from Staten Island; he was thought to be affected with hemorrhoids.

When examined, a large tumor, the size of a large hen's egg, was found situated on the lateral surface of the tail, near its base. Its surface was excoriated and bleeding. It was well defined and bulging from the surface of the skin. Another was seated under

the tail, at its base, three more were involving the anus, one as large as a lady apple was situated superiorly, another to the left, and the third, also to the left, but more inferior. They were all well defined, were of long standing, and had given rise to great trouble in defecation. Their external surface was nodulated, denuded of hair, hard to the feel, and here and there excoriated and bleeding. A diagnosis was made of cancerous tumor, and their removal was advised. The chances of success were considered favorable.

With the owner's consent, after proper preparation, the animal was given an anæsthetic and the tumors dissected out. There was but slight capillary hemorrhage, which was easily arrested by tortion. Continued sutures were applied to the wounds formed by the removal of the two largest tumors, and the others were left alone. The antiseptic spray of carbolic solution was used during the operation and during the healing process.

The wounds around the anus healed by first intention. In the other, the sutures sloughed and were reapplied, but as this occurred a second time, strips of linen loaded with collodion were applied. These the dog tore off, and a bandage was then used, placing it at the base of the tail, taking in both wounds and secured to a kind of harness passed over the back, belly and neck. This worked nicely for a while, but as the wounds began to heal up, it was torn off. The wounds were then left alone, with the exception of an occasional cauterization of their edges with nitrate of silver.

In twenty-one days from the date of the operation, all the wounds had healed, and the patient discharged. The act of defecation was naturally performed, and no new growths have since appeared.

A section of one of the tumors was kindly examined by Dr. Welch, of Bellevue Medical College, who reports as follows:

"The tumor is an epithelial cancer. It consists of large, frequently anastomosing alveoli, filled with cells resembling flat epithelial cells. In some places, so-called pearl globules, composed of horny, concentrically arranged flat cells are present."

EDITORIAL.

ANTHRAX—ITS PROPHYLAXY.

We have at different times, in the pages of the REVIEW, presented our readers with the various experiments that were carried on by Mr. Pasteur and his assistants, Messrs. Chamberland and Roux, upon the virus of contagious diseases, and especially of anthrax. It is thus that we have made our American colleagues acquainted with the action of bacteridies in the development of anthrax, with the physico-chemical and physiological conditions of their existence; with the manner in which their germs were brought back to the surface of the ground by the earth-worms, as also how the virulency of the bacteridie could be reduced so that a true vaccine matter could be inoculated, and animals be thus protected from the effects of the most virulent inoculation afterwards.

These magnificent and highly valuable observations were not, however, admitted by all. Others engaged in similar investigations denied, step by step, the correctness of the discoveries of Mr. Pasteur and his co-laborers; and amongst those adversaries to the demonstrations of Mr. Pasteur none prove more stubborn than Mr. Colin, the eminent Professor of Physiology at Alfort. Once already, in relation to the possibility of communicating anthrax to fowl, has Mr. Colin been obliged to acknowledge his errors, and no doubt he will have to do it again when time has proved, as in fact it has already done, that anthrax has lost much of its dangers by the means now afforded to owners of cattle, that is, prophylactic inoculation.

The experiments of Mr. Pasteur were not tried extensively at first, and for this reason the positive evidence of their validity was doubted; but since the experiments at Pouilly-le-Fort, there can be no more doubt as to their value. We reprint in this month's issue the programme of these experiments, with the magnificent results obtained, results which were already announced by Mr. Pasteur before any of the inoculations had been made.

NATIONAL CATTLE COMMISSION.

We extract from one of our daily papers a notice giving information of the establishment of a National Cattle Commission appointed by the Secretary of the Treasury.

In the Commission will be found the names of Prof. Law and Dr. E. T. Thayer, both of whom are familiar to the people at large, and are well known to the profession. Both have been engaged in the work of fighting the invasion of contagious pleuro-pneumonia, and as the Commission is reported to especially have in view this form of disease, we may look for some good work in that direction.

Dr. C. P. Lyman, as an officer of the Department of Agriculture, Prof. Law and Dr. E. F. Thayer, as Commissioners of the Secretary of the Treasury—with such men as *appointees of the General Government*, who will not accept this as evidence of the immense progress that veterinary medicine has made in the United States within the last few years.

VETERINARIAN WANTED.

We publish to-day a letter from a gentleman in Pennsylvania, asking to have recommended to him a veterinary surgeon to begin practice in Pittsburg. At the same time the letter was sent to the *Turf, Field and Farm*, who kindly referred it to us, we had also received one from the same person.

This is but one of many such which we receive, and serves as another indication of the growing estimation in which educated veterinarians are held. No doubt Pittsburg, like many other cities in the Union, has some practitioners of more or less ability, but the day has come when these parties will no more answer, and when educated veterinary surgeons will be the only ones who will find occupation and command the confidence of the people. We hope some young graduate will take notice of the letter and embrace the good opportunity. The REVIEW is the best medium for such kind of advertisements, and we will hereafter publish

any other request which may come to us, thus giving valuable information to those who may be in search of good locations for practice.

REPORTS OF CASES.

ŒSOPHAGOTOMY AND RECOVERY.

By J. F. Winchester, D.V.S.

Was called at noon July 24, 1878, to see a roan mare with the following history: Upon being backed out of her stall to be watered she picked up an apple from the floor and, without stopping to masticate it, made a rush for the trough and took a swallow of water, the apple at the same time going down and choking her, causing a severe cough and ptyalism. The foreign body was felt in the superior part of the œsophagus, and by the manipulations of the groom and the exertions of the horse was made to pass down the œsophagus, beyond the feeling of the groom, who then thought the mare to be all right, as the distressing cough had ceased, and but little saliva was running from the mouth. On trying to drink, however, the horse would take a couple of swallows, when the water would soon return through the nostrils, accompanied by a twitching of the neck.

After hearing the groom's story, I at once diagnosed choking due to the apple, and that that body was lodged in the thoracic portion of the œsophagus.

Symptoms.—She was standing with neck stretched, and would have severe clonic spasms of the inferior cervical muscles. During the intervals of rest she would roll and eat some grass, as she had been led out on the lawn, which would return through the nostrils after a short time.

Treatment.—Under the circumstances I advised an operation, but the owner did not think he would take his chances just then. I gave some olive oil, thinking it might lubricate the parts and allow the apple to pass on, but it also returned on the recurrence of the spasms.

That evening I was again called in a great hurry and told that

I might operate if I still considered it advisable. So I had the horse led into the barn, and with the assistance of the groom, who held a lamp over my shoulder, I began the operation, without placing any restraint upon the animal, and did not require any during the operation. I cut through the skin on the left side and the middle third of the neck, dissected through the sub cutaneous muscle (of the neck), separated the jugular vein from the cellular tissue, pushed aside the omo-hyoideus muscle, then separating the carotid artery, the pneumogastric and sympathetic nerves from the connective tissue, and exposed the œsophagus attached to the trachea, which I opened on its superior face after separating the trachea and bringing it outside the opening.

I passed a probang and could feel the apple at or very near the cardiac opening of the stomach, but could not move it owing to the contraction of the muscular coat of the œsophagus. So I left the beast for the night, and the next morning, with the assistance of J. S. Saunders, D.V.S., of Boston, the apple was pushed into the stomach. The wound in the œsophagus was then sewed with a continuous suture, bringing the mucous membrane in apposition and leaving the ends of the suture outside; the outer wound was brought together with an interrupted suture and then treated as a simple wound, leaving orders that the beast be fed per rectum with cooked food, and kept tied up so she could not rub her neck.

July 25.—Saliva escapes from the wound, but very little swelling.

July 26.—Discharge of saliva as abundant as last night. The animal broke her halter and rubbed her neck, breaking away most of the sutures, and the parts are swollen quite badly, but can get a couple of stitches in the œsophagus. She was placed in a sling and the same treatment continued. At the end of the week her rectum became so irritable that she could not retain her food, so I put a rubber pipe about ¼ inch in diameter and about 1½ feet long into the œsophagus, with a funnel in the end, through which she was fed five times in twenty-four hours. She has lost considerable flesh, but looks bright and has a good pulse; her bowels do not act very regularly, so I give her enemas.

Aug. 5.—Her bowels not responding to enemas, I put her under nux vomicæ, and in five days she had some fœces pass her. The wound is gradually healing, the discharge of saliva still continuing, but less in amount.

Aug. 12.—Doing as well as could be expected, bowels being in good condition. Stop nux vomicæ, but other treatment the same.

Sept. 1.—The wound having healed, I removed the rubber pipe from the œsophagus, as she can swallow liquid food by taking the precaution of putting a pad over the wound, but am obliged to pour the food from a bottle, as she will not drink from a pail.

Sept. 6.—She will now drink without any inconvenience from a bucket, but still have to use the pad over the wound, which is gradually healing, that of the œsophagus almost closed.

Sept. 15.—Does not require the use of the pad over the wound while drinking. Since the operation the food has been in a fluid form, but now she receives cooked oats and meal with what grass she will eat. Give her exercise now every day and removed the slings.

Oct. 1.—Can eat dry oats but not hay, so she is turned out to pasture and allowed one month to run, after which she was able to eat her usual food; light work was then ordered, and under careful management she soon regained her good condition, doing her owner good service.

TARSAL TENOTOMY.

PROVIDENCE, R. I., June 29.

Editor American Veterinary Review:

DEAR SIR:—You will find below a notice* from one of the local papers of this city of June 24th, 1881, of an operation per-

* Dr. George H. Bailey, V. S., of Portland, Me., one of the judges at the races, made a very successful operation of tarsal-tenotomy for spavin, at Hobbs & Tuttel's stables, yesterday, upon a valuable horse, in the presence of Drs. Scrutton and Burt and a large number of turf-men, in attendance at the races. The operation is almost a painless one for the animal, and is fast superceeding the old and much more painful one of firing and blistering. The operation was performed to show Rhode Island horsemen how they can save their favorite steppers.

formed by Dr. Geo. H. Bailey of Portland, Me., and as it was done to show us poor R. I. people how to save their favorite steppers, I will report the result of four cases I have operated upon, if you think them of sufficient interest to insert in the REVIEW; but before this, I considered them an operation so simple, as to be not worth the space.

CASE No. 1.

June 10th, 1878.—A bay mare belonging to Mr. Hall, of Fall River, 10 years old, lame in off hind leg, had been so for some time before he got her; had been fired and blistered twice both by points and lines; did not drive out her lameness; had quite a large deposit over lower portion of the hock; was thrown on off side, an incision about 1½ inches long made in an oblique direction from forwards backwards and downwards over the course of the internal branch of the tendon of the muscular portion of the flexor metatarsus. After the skin and aponeurotic tissue over the tendon had been well separated, I flexed the lower portion of the leg at the hock and with a large curved needle raised the tendon, then with a curved bistoury separated it, cutting downwards and backwards towards the attachment as much as possible; washed the wound with a solution of carbolic acid, one to forty; took one stitch and let the mare up, applied a dressing of oakum and carbolic solution, held in place by a light cotton bandage, rolled from both ends in a figure eight. The animal stood well.

June 12th.—Wound healthy. Dressed with solution of chloride of zinc, and same kind of dressing as before.

June 14th.—Wound healthy, slight suppuration. Removed the stitch, dressed with chloride of zinc and a solution of carbolic acid and aloes.

June 17th.—Looks well, wound nearly closed. Dressed as before.

June 21st.—Wound closed. Walked from stall; no lameness.

June 28th.—Turned out to grass. Was lame after ½ mile walk. Was at pasture for four weeks; then was put to work, and showed no lameness, and in about three months was sold, and I lost sight of her.

Case No. 2.

Dec. 9th, 1878.—Brown gelding, 9 or 10 years old, belonging to a Mr. Harrison, of Johnson, was left at my stable. Had been fired, &c. Had a deposit on nigh hind leg. Was cast and operated on as in case No. 1. Found tendon somewhat pressed out of its normal position, being about ½ inch upwards, and more in a circular than in an oblique direction; after separation of tendon, animal got up, and wound dressed as in case 1.

Dec. 11th.—Animal in some pain, temperature 102, pulse 50, leg swollen and quite sore to the touch. Dressed with carbolic acid solution and tinct. myrrh.

Dec. 12th.—Temperature 103, pulse 60, refuses all food, holds leg from the floor, all the time placed in slings; leg hot, swollen and painful; wound looked bad. Dressed with solution of chloride of zinc, applied irrigation of icewater and gave one oz. doses of laudanum every six hours.

Dec. 13th and 14th.—Animal about the same. Gave the same treatment.

Dec. 15th.—Temp. 104, pulse 72, respiration 24. Synovial discharge mixed with pus. Carbolic acid dressing used; irrigation continued. The animal continued about the same until the 25th, when it was destroyed, as it would not eat, having received stimulants and tonics since the 15th. I made a dissection of the hock and found the articular surface of all the small bones, as well as the superior surface of the metatarsal, ulcerated; the small bones were not anchylosed together.

Case No. 3.

Aug. 19th, 1879.—Black mare 12 years old, belonging to Mr. Whipple, of Georgeville, lame on nigh hind leg. Had been fired twice and blistered quite a number of times; had been lame for three years; would drive almost out of his lameness. Was operated on as in the other cases, dressed with carbolic solution and lint.

Aug. 21st.—Wound looked well, temp. 100, pulse 40. Dressed as before.

Aug. 23d.—Removed stitch; wound almost closed. Dressed as before.

Aug. 25th.—Pulse and temperature normal. Dressed the wound with solution of chloride of zinc and pulverized Fuller's earth; no bandage. Walked from stable and showed no lameness; was put to grass for two weeks, then went to work, and worked without lameness until June, 1880, when she died with colic. I obtained the hock for dissection, found all the small bones anchylosed together and to the head of the metatarsal bone.

Case No. 4.

May 12th, 1880.—Large brown mare, worked on a farm in Adamsville, belonged to Mr. Holden. I had fired the mare twice, two years before; she continued to go lame and had been a year before I fired her. Operated on her as in the other three cases.

May 14th.—Dressed as before; treatment as in case No. 1 and 3; in a week was turned out, and was not lame; in two weeks was led home and put to work for three months or more; went sound and was traded.

Another One.

The animal was given me to destroy and I operated on the hock. She was an old mare, had been fired and blistered but always went lame; had been so for four or five years; worked on a farm very well. I operated on and dressed as in the rest of the cases. I had swelling on the second day and then I treated as in case No. 2. Finally synovitis set in. I kept her 12 days and then destroyed her. On dissecting the hock, I found as in case 2, ulcerations on the articular surface, and the small bones were not anchylosed together.

I have examined quite a number of hocks which I have obtained from the dead yard, and have found that in those with large deposits on the lower portion and situated well over the inside, we are more apt to have the small bones anchylosed than in those that are more forward, and that in hocks having large deposits on them we will quite often find the branch of the tendon pushed from its normal oblique course upwards in such a way that it has the appearance of running in a circular direction from its attachment to the bifurcation. If any one will take the trouble to dissect a few hocks, or to examine some that have been

macerated, or other ways prepared, and see where the groove made by the tendon runs, and compare with a hock that has no deposit on it, they will, I think, see it is so. For favorable results I think we must have complete anchylosis of the cuneiforms to the head of the metatarsal; for I think we will not have a deposit large enough to warrant an operation, without we have ulcerations on the articular surfaces of the metatarsal and small bones. I think if you look at your specimens, you will find it is so. I think when we are satisfied we have complete anchylosis of those bones and the lameness is due to pressure of the tendon on the periosteum, we will have a successful operation; while if this is not the case, we will not. I also think, the lower down and the nearer the attachment of the tendon to the small cuneiform bone we make our incision and division of the tendon, the better our success, while the higher up and the more towards the forward portion of the hock, or, as I might say, the nearer the capsular covering of the tibio tarsal articulation we get, the more chances of synovitis and a failure.

Hoping to have others express their views on this subject so to save other favorite steppers.

I am yours, &c.,

C. H. PEABODY, D.V.S.

PROGRAMME AND RESULTS OF EXPERIMENTS

UPON VACCINATION OF ANTHRAX AT THE FARM OF POUILLY-LE-FORT.

BY M. PASTEUR.

The Society of Agriculture of Melun having offered to M. Pasteur, to practically test the value of the experiments made by him and his assistants relating to anthrax, the following programme of experiments relating to preventive vaccination was agreed upon:

1st. The Agricultural Society of Melun places at the disposition of Mr. Pasteur sixty sheep.

2d. Ten of these shall receive no treatment and be kept as proofs.

3d. Twenty-five shall receive two vaccinal inoculations from twelve to fifteen days apart with carbuncular virus.

4th. These twenty-five sheep will, with the remaining twenty-five, be inoculated twelve or fifteen days after with very violent virus.

The unvaccinated twenty-five sheep shall all die, the twenty-five vaccinated shall resist the disease, and will afterwards be compared with the ten reserved as proofs, so as to demonstrate that the vaccinations have not prevented them, after a certain time, from returning to their normal state.

5th. After the inoculation of the very violent virus to the two series of twenty-five vaccinated and unvaccinated sheep, the fifty will remain in the same barn; one lot being distinguished from the other by a mark made on the ear of the twenty-five vaccinated.

6th. The ten reserved for proofs always to remain by themselves, so as not to be exposed to the contagion of the diseased ones.

7th. All the sheep which shall die to be buried one by one in separate spots, close to each other, and situated in a fenced plot.

8th. In the month of May, 1882, twenty-five new sheep—that is, not having been experimented upon—shall be placed in said plot.

When these twenty-five sheep shall have eaten the grass of that ground, they will be fed on the same with grass thrown upon it. Of these, several will become spontaneously affected through the carbuncular germs which shall be brought back to the surface by the earth worms, and shall die with anthrax. This experiment can be stopped after a week or two, as soon as a few shall have died, so as to save a useless loss of animals, the contagion being sufficiently proved by the death of a few. The Society will be at liberty to act on this last suggestion.

9th. Twenty-five other sheep will be placed near the fenced spot, at some meters from it, in a place where no carbuncular

animals had ever been buried, so as to prove that none will die from anthrax. This plot of ground will also be fenced and of the same dimension as the other.

The President of the Society having expressed the desire that the experiments be made also upon cows, Mr. Pasteur answered that he was willing to test them, though the experiments of vaccinations upon cows were not as advanced as those on sheep, and that it might be possible that the results would not be as positive. At any rate Mr. Pasteur proposed that ten cows be placed at his disposition, that six should be vaccinated at the same time as the sheep and four should remain unvaccinated—after the vaccination the ten cows will simultaneously be inoculated with very virulent virus. The six vaccinated cows will not be sick, the four unvaccinated shall perish or at least shall all be very sick. With the dead cows the experiment of reproducing the contagion by the earth can be carried out as it was for the sheep.

The experiments shall begin on the fifth of May and likely be terminated in the first part of June. * * * * *

Mr. Pasteur made the report of the above experiment as follows:

"The experiments began on the 5th of May, in the commune of Pouilly-le-Fort, on Mr. Rossignol's farm.

Upon request of the Agricultural Society two sheep were replaced by two goats and as no condition of age, sex or breed had been proposed, the fifty-eight sheep were of different ages, sex and breed. The ten bovines were represented by eight cows, one ox and a bull.

Upon the 5th of May, 1881, with a syringe of Pravaz, twenty-four sheep, one goat and six cows were inoculated with five drops of culture of attenuated virus.

On the 17th they received another inoculation of another culture, also attenuated, but more virulent than the first.

On the 31st of May, an inoculation of very virulent virus was made, which was to decide as to the efficiency of the preventive made on the 5th and the 17th. To effect this, these thirty-one vaccinated and twenty-four sheep, one goat and four cows were inoculated.

None of these last had received any previous treatment.

The very virulent virus, which was in use the 31st of May, was regenerated by germs corpuscules of the carbuncular parasite preserved in my laboratory since the 21st of March, 1877.

So as to render the experiment more comparative, one vaccinated was inoculated alternately with an unvaccinated animal. The operation ended, an engagement to meet was made, by all persons present, upon the 2d of June, only forty-eight hours after the beginning of the general virulent inoculation.

At the time of meeting, the 2d of June, the results were wonderful, the twenty-four sheep, the goat and six cows which had been inoculated had all the appearances of perfect health; on the contrary, twenty-one sheep and the goat which had not been vaccinated, were dead with anthrax; two other sheep, unvaccinated, died before us, and the last late in the day.

The unvaccinated cows were not dead. We have already shown that cows are not so likely to die from anthrax as sheep, but all had voluminous œdema around the point of inoculation, behind the ear. Some of these swellings reached, in the following days, such a size that they contained several liters of liquids, their temperature raised three degrees. The vaccinated cows had no elevation of temperature, no enlargement, no diminution of appetite. This renders the success of the experiment as complete for the cows as it was for the sheep.

On the 3d of June, a vaccinated ewe died. In the opinion of the veterinarians who made the post mortem, the death was due to the death of the fœtus she carried.

NATIONAL CATTLE COMMISSION.—A Washington despatch states that under authority conferred by the Sundry Civil Appropriation bill, the Secretary of the Treasury has appointed James Law of Ithaca, N. Y., James H. Sanders of Chicago, and E. F. Thayer of West Newton, Mass., a commission, to be known as "The Treasury Cattle Commission." The Commission has been instructed to meet at Washington as soon as convenient for the purpose of adopting such regulations as may be deemed proper,

with a view, it is stated, to investigate all cases of pleuro-pneumonia in neat cattle, especially along the dividing line of the United States and Canada, and along the lines of transportation from all parts of the United Staies to the ports from which cattle are exported, and perform other duties prescribed by the Secretary with reference to disease, in order that cattle shipped from the United States to foreign ports may be known and certified to be free therefrom.

EXTRACTS FROM FOREIGN JOURNALS.

DENTIGEROUS CYST IN A FILLY.

Prof. Degive, in Brussels, reports an extremely rare and interesting case of a dentigerous cyst on the base of the ear of a filly:

On June 5th, 1879, there was brought to the clinic, a two-year old filly, of the draught horse class, which had all the pathognomic symptoms of a fistulous ear due to a dentigerous cyst. On the free margin at the base of the concha auris was a fistulous opening from which oozed a tenacious fluid, and under the skin could be felt a diffused, induruted bone-like enlargement. The animal was cast. The skin and periosteum were divided and the dental mass laid bare. The removal of the same by means of a gouge especially constructed for this purpose was not attended with much difficulty. At first a larger portion lying in a forward direction was successfully detached, and then a smaller, deeper seated, irregular mass was removed; the latter crumbled into fragments which had to be extricated one by one with a forceps. Both portions consisted of several incomplete imperfectly formed molar teeth. Upon examining the wound by introducing the finger, Degive felt at the bottom of the same a soft tissue which was easily displaced, but after removing the finger it readily receded and projected over the margin of the bone. This soft tissue could have been nothing else than the exposed brain, and instead of the favorable prognosis that was previously declared, a trau-

matic phrenitis set in on the second day, which, after the lapse of four days, terminated fatally.

The autopsy revealed a general congestion of the brain, with softening and putrid metamorphosis of a considerable portion of the same in the vicinity of an oblong opening directly in front of the tuberous portion of the temporal bone. The upper rarified border of the opening was everted; the other likewise very thin border was directed toward the eucephalon. The opening itself was closed in consequence of the atrophied dura mater, which was perforated in the centre; the rent had irregular edges, with fragments of dentine still attached. At the bottom of the wound a reddish gray purulent fluid was deposited, in which floated fine particles of debris brain substance. The exterior of the petrous temporal bone portrayed a round depression which was surrounded by a circular wall, and in this depression the bulk of the dentigerous cyst was lodged.—*From the Repertorium der Thierheilkunde, Heft II.*, 1881.

WOUND IN THE FLANK BY THE SHAFT OF A WAGON.

By M. Palat.

This case is that of a horse which collided with a carriage coming in an opposite direction from that which he was traveling. The blow was very powerful, and the shaft penetrated in the right flank to a great depth, throwing the horse down and giving rise to a large hemorrhage.

The wound was first sewed up, and bathed with astringent cooling lotions. On the arrival of M. Palat, he found the animal presenting a peculiar immobility, with his hind legs stretched backwards, and unwilling to move. On the upper part of the right flank, a little above and in front of the hips, there was a wound closed by stitches, transversely, and of a depth difficult then to appreciate. The thigh, hips, and right flank were enormously swollen. According to the reports made, it is believed that the sub-peritoneal adipose tissue had been torn, as parts of it were removed when the wound was first dressed.

Fearing peritonitis, or traumatic gangrene, an unfavorable prognosis was made, and treatment of aloetic carbolized water by injections was prescribed, with light feeding.

The next day the swelling had increased and the animal was dull and almost without appetite. Abundant bloody discharges from the wound occurred at each movement of the animal, and there was great stiffness in walking. Same treatment. At the following visit the animal seemed improved. The stitches of the wound being cut, allowed an inspection which shewed that the shaft had penetrated to a depth of 17 centimeters. The wound extended from the front of the pelvis towards the opposite side. The skin was loose downwards to the stifle joint. A counter opening was made at this point, and the same treatment continued. By degrees the bad smell of the wound disappeared, and the condition of the patient slowly improved.

Some two weeks after the injury a mass of muscular fibres, weighing 260 grammes, was cut off, and some days later a small piece of the point of the ilium sloughed away. After forty-seven days of treatment, the wound was entirely healed and the animal was able to resume his work.—*Recueil de Medecine Veter.*

RENAL CALCULI IN A BITCH.

By M. P. Megnin.

This is the report of a post mortem made on a bitch in which calculi were found in the pelvis of the kidneys. They were larger than the natural size of the pelvis, which was in consequence much distended, the medullary portion of the organ being destroyed, the cervical portion being almost all that remained of the organ. One of the calculi, that of the right kidney, weighed 7 gramms, and measured 28 millimeters in length, 21 in width, and 15 in thickness. It was roughly pyramidal, with faces and angles irregularly rounded, and having at its apex a small projection corresponding to the hilus of the kidney.

The other calculus weighed 6 gramms, and had a crescent shape with extremities blunt and rounded. It had also a little

prolongation to the hilus of the kidney. In fact, it represented quite well the shape of the cavity of the organ.

The surface of these calculi was rough and brittle. The scraping of the faces gave a sand which under the microscope was found of amorphous granulation and prismatic crystals of phosphatic ammoniaco-magnesian salts. According to the history obtained, this affection had dated from a period of four years.

During one year she ate thousands of small rabbits, which she caught in the woods. After that she seemed to suffer excessively, sometimes walking for two or three days without stopping, walking alongside the walls as if being blind, and without taking any food, either solid or liquid. These accessions occurred at irregular intervals, almost weekly, then every three or four months; she would then drop exhausted, and after a few days seem to be entirely well.

In the last two years the spells were less frequent. It was thought that those she had had came after eating bones? * * * She was always constipated; the fœces looking like a yellowish plasterer's dust. She ate much meat as well as bone, but no vegetable, and she was always very thirsty, refusing milk, but being very fond of water.

Eight months ago she had three or four pups, who died in a few days. After this litter, her urine became very offensive in odor. At the time of death she was again pregnant. One of her kidneys performed its functions well, as the bladder retained its dimensions and aspect.—*Recueil de Medecine Veter.*

ELASTIC LIGATURE.

By M. P. Cagny.

In a note on this subject presented at the Central Society of Veterinary Medicine, the author says:

"*As an hemostatic.*—In cases of wounds of the extremities, in the horse, for instance, when other means of dressings are not at hand, an elastic cord, moderately tightened, seemed to me superior to any other compressive bandage that can be improvised. I tried it only once in a horse, but oftener in the ox.

Several times I have seen cattle, which, while trying to run away, had been bitten in the tail by dogs, leaving wounds which bled freely. In one of these cases, for instance, two deep wounds had been made on each side of the tail, at about its middle, and severe hemorrhage was going on. An elastic ligature slightly tight was put on, and the bleeding stopped. Two hours later the dressing was removed and the hemorrhage returned, being brought on by the motion of the tail, when the elastic band was again applied and left for twenty-four hours. On being removed again, the hemorrhage returned. Another ligature, tighter, was applied and left several days. This was followed by a sloughing of the tail. This result induced me to use the elastic cord in cases of amputation.

"*Amputations.*—Some dogs have at the posterior face of the metacarpi, supplementary fingers, whose claws do not rest on the ground, and do not wear. These get broken and torn, giving rise to somewhat serious lameness. In these cases it becomes necessary to amputate the finger, right at its origin.

"Formerly a simple section was made, but was followed by hemorrhage more or less annoying than dangerous. To avoid this I have used the elastic ligature.

"This claw is united to the others only by the skin. After a few days of constriction, by slight torsion, it easily became loose, without losing one drop of blood. * * * Mr. Goubaux, some time ago, made a report upon the amputation of supplementary members in our domestic animals, (horses, cows, sheep.) I believe that the elastic ligature ought to be tried in those cases.

"*Amputation of the tail of a horse.*—In this operation, the most difficult step is to stop the hemorrhage. Nervous, irritable horses resist the actual cauterization generally used, and it often requires several applications before the bleeding stops. Instead of this, I applied a ligature well tightened, as near as possible between two of the caudal vertebra, previous to amputation, which is then done as usual. After a week, the elastic cord was removed, and in a short time the animal was ready to resume his work.

"In the dog, the same operation can be performed."—*Recueil de Medecine Veterinaire.*

CROUPAL ANGINA IN THE HORSE. RECOVERY.

By M. Targue.

On the 31st of December, 1879, the author of this report was called to attend a small horse, a chestnut bay, of a nervous, sanguineous temperament. At his first visit he found the animal in great suffering, with very difficult respiration, anxious looks, widely distended nostrils, and griped countenance; the animal roared with difficulty and continuously. Cough frequent, strong and repeated. No enlargement of the guttural and parotid regions. Sensibility of the larynx extreme, pulse increased, mucous membrane highly injected.

Diagnosis.—Membranous croupal angina. According to the history of the case, the animal has been exposed to severe drafts.

Prognosis.—Serious.

Treatment.—Though tracheotomy seems indicated, I decided to postpone it, and prescribed the following:

Removal by bleeding, of 3 pounds of blood; emollient fumigations; gargles of alum and chlorate of potass; soothing and expectorating electuary, with kermes, gum ammoniac, extracts of hyosciamus and belladonna. Externally, mustard applications.

The next day the animal was much worse; cough more continual, respiration more difficult, asphyxia threatening.

After explaining to the owner the danger of his animal, tracheotomy was decided upon and performed. As the skin was about to be divided, the animal was taken with a sudden cough, and threw up, after five or six coughing spells, three false membranes of a greyish white color, measuring about 15 centimetres in length, 2 in width, and two or three millimitres in thickness.

On examination, some of these proved to be essentially formed of a fibrinous net work, somewhat infiltrated with small bulbs of air upon one of their faces. Their resistance is quite strong.

As soon as they were expelled, the respiration returned to its normal condition, and the recovery seemed to be instantaneous.—*Annales de Medecine Veterinaire.*

GAUCHO OF SPANISH REPUBLICS OF AMERICA.

The *Cultur-Historische Analecta*, in Prof. Falke's Jahrbucher, 1880, contains the following description of a Gaucho by O. Peregrinus:

The Gaucho of the Spanish Republics of America is one of the most interesting tribes of the human race. His peculiarities are generally misrepresented. The Gaucho is said to be a nomadic shepherd or thieving inhabitant of the uncultivated parts of the pampas. However, he is decidedly better than his reputation. A proverb of America says: "He is born, lives and dies on his horse," and in certain respects it is perfectly true. The recardo, a saddle composed of blankets, hides, bolsters and straps, very often forms his dwelling, for it serves him, as well as his family, who is likewise equipped with horse and saddle, as a bed, also as a protection against the cold and rain.

He is the best rider in the world, although he has no knowledge of the European art of horsemanship; he is not even acquainted with the trot. The Gaucho alone is able to travel over 15 German miles daily, for four or five successive days, upon the same mean looking horse, without he or his animal showing any signs of fatigue.

On these journeys he contents himself with a piece of dried meat, and the horse with dried grass or rather the roots of the pampas. The use of water is also limited. According to his idea, the Gaucho is a free man, for he possesses such an impulse for independence that he even despises a secure dwelling. Now he is found assisting upon this estanzia in marking the animals with a red hot iron; then upon another, engaged in shearing the sheep; and again, accompanying a great transport of cattle, etc. Moreover, his life revolves upon three things: His horse, his sweetheart, and the free enjoyment of liquor; when, however, the last is enjoyed, an opponent is found and a duel indulged in, very often terminating fatally, in which case he is exiled from his native land for years.

The lasso is a braided strap of raw leather, with a loop. The

Gaucho throws the lasso 60 or 70 feet, previously marking the horn or foot of the animal he intends to capture.

Soon both the Gaucho and his horse will cease to exist, for agriculture, which is improving year after year, will force him to become civilized, while the original Gaucho horse, through crossing with the noble Tracheuer, will change into a new species, harmoniously uniting the durability and toughness of the former with the beauty of the latter.

The same author makes the following flattering comments upon an essay read before the New England Agricultural Society, Worcester, Mass., 1879, (from the fertile pen of our colleague, Mr. Billings):

It gives us great pleasure to note here, with full acknowledgment, an essay from the New World, which was copied in the *Turf, Field and Farm*, N. Y., Sept., 1879, and read before an Agricultural Society, pertaining to the study of comparative pathology and the education of scientifically qualified veterinarians. We deem a reproduction of the same superfluous, since we have sufficiently dwelt upon the development of the intended branch of science in the first volume of our Jaerbuecher. We trust henceforth to be able to refer often to American veterinary acquisitions in our journal.

J. C. Myers, Sr., V.S.

CORRESPONDENCE.

VETERINARIAN WANTED.

Pittsburg, July 15th, 1881.

To the Editor of Turf, Field and Farm, New York, N. Y.:

Dear Sir:—Do you know of a young veterinary surgeon of good habits and industrious? For such a person I feel sure there is a splendid opening in this place. I am the owner of a great many horses, and with my influence, I feel sure he could soon have a good paying business.

Respectfully yours,

James McKibbon,

No. 50 Fountain St., Pittsburg, Pa.

NEWS AND SUNDRIES.

THE ATTEMPT to naturalize camels in Texas and New Mexico has been partially successful.

A DISEASE that is said to resemble diphtheria prevails among horses in some of the towns of Northern New York.

THE SWISS GOVERNMENT has made an investigation of the subject, and declares officially that there is no reason for excluding American meat from Switzerland.

HUNDREDS of horses are dying in Paris, it is reported, from a disease that is called scarlet fever.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Archives Veterinaires, Recueil de Medecine Veterinaire, Gazette Medicale, Annales de Belgique, Journal de Zoötechnie, Revue Dosimetrique.

HOME.—Medical Record, Surgical Reporter, Turf, Field and Farm, American Agriculturist, Prairie Farmer, Country Gentleman, Maine Farmer, American Cultivator, National Live Stock Journal.

JOURNALS.—Iowa Farmer, Ohio Farmer, Journal of Agriculture (Boston), Ploughman.

CORRESPONDENCE.—W. J. Coates, R. Harrison, J. F. Winchester, C. H Peabody, J. C. Myers, Sr., J. C. Corlies, A. H. Baker, T. Vaughn.